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ABSTRACT

The relationship between Hawaiian children's motivation in school and their teachers' use of contingent social reinforcement was examined in the Kamehameha Early Education Program (KEEP). Student motivation was measured by observation of an unspecified number of subjects' on-task behavior--i.e., how often they worked, attended to the teacher, or behaved as the situation required. Teachers who had received inservice training on the use of contingent social reinforcement were also observed on a regular basis and the frequency of their use of social reinforcement was recorded. Weekly summaries of the rate of positive social reinforcement and the percentage of children on-task were posted publicly. The data collected from these observations showed that the KEEP children's average on-task rate was 90 percent and that the percentage of disruptive behavior declined over the 6-month observation period to the point where an observer would see, on the average, only one child or no children being disruptive in the KEEP class. Although the teachers' rate of positive social reinforcement did not correlate with the children's on-task measures on a day-to-day level, the children's work behavior did show a drastic drop when an inexperienced teacher was present and a return to its previously high level when the original teacher, experienced in the use of social reinforcement, returned. It was thus concluded that the students' high level of motivation was attributable to the teachers' frequent use of verbal encouragement and praise. (JMB)

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Technical Report #6

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The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate. The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

Abstract

Island children are often described as "unmotivated" in school. We measured "motivation" by its effects-that is, what percentage of time are the KEEP children actually "on-task"?

Details are given on the observation system used in the 1972-73 school year. Results were very favorable: the KEEP children's average on-task rate was 90 percent. On an overall basis, we attribute this high rate to the teachers' high rate of verbal encouragement and praise. However, these two variables do not correlate on a day-to-day level since both are affected by many other conditions.

Despite the high on-task behavior of the KEEP children during this school year, during the next Fall, their work-behavior dropped drastically when a new teacher was present, and reappeared as soon as the previous teacher returned.

We conclude that "motivation" is a condition of the classroom, not of the child, and one can create highly motivating classrooms for Island children. Since the children's "motivation" disappears when good child management is withdrawn, it is also necessary to continually employ excellent teaching practices.

Implications for Future Research

1) Verify these results with later classes.

2) Refine the teacher behavior code.

3) Investigate the relationship of "on-task" to learning.

Technical Report #6

The Uses and Limits of Increasing Student Motivation[1]

David Lam Luci Kidoguchi Ronald Gallimore

Roland G. Tharp Gisela E. Speidel

In contacts with educators, a common complaint was that many Island children are not sufficiently "motivated" to succeed in school. A corollary comment was the attribution of a "short attention span" to primary grade children. Although we generally focused our earlier studies on Hawaiian-American younsters (Gallimore, Boggs, and Jordan, 1974; Tharp and Gallimore, 1970), many educators see this motivation problem in many other Island children.

KEEP research measures "motivation" by its effects, that is, by how often students work, attend to the teacher, or behave as the situation requires. We define work or appropriate behavior as any classroom teacher might and measure it by direct, regular observation. In the end, we use what any teacher might use as a measure of student motivation if he had enough time to keep careful and complete records.

Previous Findings

The findings of the Leeward research program were summarized by Gallimore, Boggs, and Jordan (1974). They concluded that there were

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[1]Preparation of this report partially supported by the Sociobehavioral Research Group, MRRC, UCLA. Computing assistance was obtained from the Health Sciences Computing facility, UCLA, supported by NIH Special Research Resources Grant RR-3.

two factors in that community which influence motivation in the classroom. First, they found that social reinforcement (e.g. praise, supportive statements) was repeatedly demonstrated to have a profound effect on the amount of attention and work produced by the children. Gallimore, et al. suggested that this might be for cultural reasons, but added the caution that positive teacher behavior has been advocated, almost universally, by progressive educators. They suggested that, whatever the reason, teachers who attended to the skillful and systematic use of positive social reinforcement could expect to elicit high degrees of motivation in this population.

Gallimore, et al. also concluded that the organization of work groups had a significant effect on attention to task and task productivity. They reviewed a number of sources of evidence which together indicated that Hawaiian-American students would do better if allowed to work together, or at least, were not punished for their strong orientation toward peer interaction. Naturally, the affiliative orientation is related to the responsiveness to social reinforcement: any individual who responds to social reinforcement can be expected to show a high rate of affiliative behaviors (positive attending and orienting) since they are likely to be met with positive reactions. In other words, individuals motivated toward social reinforcement are likely to be gregarious to increase the probability of receiving this reinforcement.

The KEEP Approach to Motivation

From the beginning, a strong emphasis was placed on the KEEP staff's use of contingent positive social reinforcement. Technical Report #7 which summarizes the training and research experiences of the

KEEP teaching staff clearly reflects this emphasis. Weekly summaries of the rate of positive social reinforcement as well as the percent of children on-task were posted publicly, providing the staff with a regular source of feedback. The preferred work-groups system was also emphasized, the basic classroom organization of KEEP in 1973-73 was "learning centers." Children worked at tables in groups of five to seven, and were allowed to interact while working on their activities and materials.

These two features were the foundation of the KEEP effort to increase student motivation. They represent only a minor departure from standard public practices in the classroom. Of course, the extensive in-service training and feedback program goes well beyond standard practice. This aspect, however, is the major experimental manipulation undertaken at KEEP, an activity described in more detail in Technical Report #7.

The data we present here are taken from our system of Continuous Monitoring evaluation. Rather than rely on pre- and posttest evaluation, we have attempted daily calibration of the actual rates of critical behaviors displayed by teachers and students. Naturally, what we monitor is limited. For students we have focused on what we call on-task: a measure of appropriate behavior, with appropriacy determined by the particular circumstance in which the child finds himself. We have also focused on the rates of positive and negative teacher

behavior directed at students.[2]

Continuous Monitoring

From November, 1972, through April, 1973, a total of 232 observation sessions were conducted over a total of 92 days. Students and teachers were observed and recordings were made on pre-established categories, listed in Appendices A and B. May, 1973 data were not collected because staff time was taken up with posttesting and completion of experiments. The observations were taken for three periods each morning for approximately 15 minutes per observation period, for an average total of 45 minutes per day. The three observation periods covered times when significant classroom activities took place. Recess, lunchtime, and other nonacademic, or unstructured sessions were not included.

Each 15-minute period was subdivided into two minute blocks. The number of subintervals in each observation period ranged from five intervals (ten minutes) to eight intervals (16 minutes). The variation resulted from unanticipated changes in class activities and scheduling, observer error, and other exigencies of classroom research. During each subinterval the observer recorded pupil behavior until each child had been observed and his behavior noted one time. The

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[2]Verbal prompts and modelled prompts were unfortunately too difficult to code and were deleted from the continuous monitoring process and from these analyses; this problem was addressed again during our second year. See Technical Report #11 and #19 for another approach that proved useful for coding instructional behavior.

remainder of the subinterval was spent observing teacher behavior. At the end of each subinterval, another two minute observation period would begin again with focus on students, followed by observation of teachers. The average time spent observing teachers was 88.59 seconds and average time observing students was 31.41 seconds. The modal number of observation periods per day was three for the 92 days on which observations were taken. The modal number of subintervals per day was 23 i.e. 46 minutes of observation per day).

For the observation of the pupils, a sweep technique was employed. This entailed the observer scanning the whole classroom, first counting the number of children "on-task," then repeating the scanning for each of the other behavioral categories ("off-task," "disruptive," "between task").[3]

With the teacher, the observer would simply record the frequency with which the observed teacher exhibited each of the prespecified response classes within each interval. Since the behavioral categories here were not mutually exclusive, a response chain by the teacher may have resulted in checks in more than one category at any given time.

Reliability of the observation categories was established between one constant observer and four other observers. Reliability estimates were obtained with the following procedure. One of the observers marked every 30 seconds. At the beginning of each 30-second interval, the observers recorded the behavior of the preselected student, then

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[3]A slightly different observation procedure was used to collect on-task rates for individual students. This procedure and its results are described later in this report.

immediately turned to record the behavior of the teacher. As soon as the next 30-second interval was called out, the observers again shifted their attention to the child and then to the teacher, and so on to the end of the observation period. These reliability checks were conducted for an average of ten minutes (i.e. 20 consecutive 30 second intervals). The reliability coefficients for reliability checks conducted between September, 1972, through March, 1973, ranged from 66 to 100 percent for the pupil code and from 56 to 100 percent for the teacher response code. One notes the greater reliability for the student categories; the degree of reliability increased over the year. Teachers were more difficult to code because frequency counts were taken of their behavior, and at times, the categories of observation occurred with great frequency, potentially overloading the recording capacity of the observer.

Continuous Monitoring Results

The development of the observation code and establishment of its reliability took approximately one month. The entire class was in attendance beginning in mid-September; thus, November was the first full month of data collection. Data collected during the reliability phase of development suggest that the percentage of children on-task during September and October ranged from 60 to 80 percent.

Table 1 presents the mean percent of children observed to be on-task, off-task, between-task, and disruptive, from November, 1972, through April, 1973. These monthly averages are based on the daily observations, and reflect the daily averages for each of the six months. These student data are also presented graphically in Figures 1-4.

TABLE 1

Means of Percent On-Task, Off-Task, Disruptive and Between-Task by Months

	On-Task	Off-Task	Disruptive	Between-Task
November 1972	86.07	5.86	3.07	5.00
December 1972	88.25	5.50	2.08	4.17
January 1973	87.75	6.33	2.67	3.25
February 1973	93.78	2.71	0.15	3.36
March 1973	95.45	2.70	0.35	1.50
April 1973	91.28	4.18	0.36	4.18
Mean	90.43	4.55	1.45	3.58

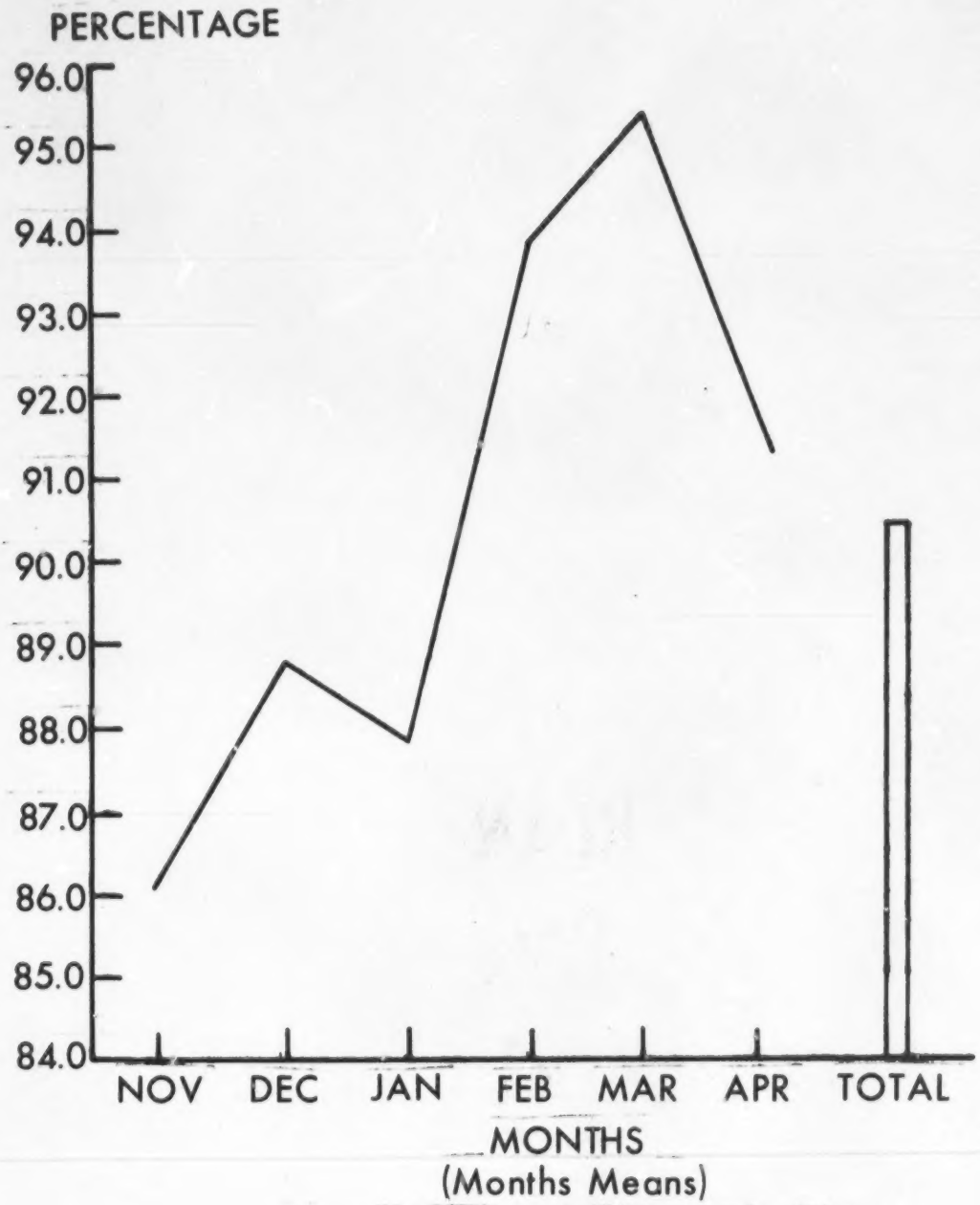


Figure 1 Percent Children On Task

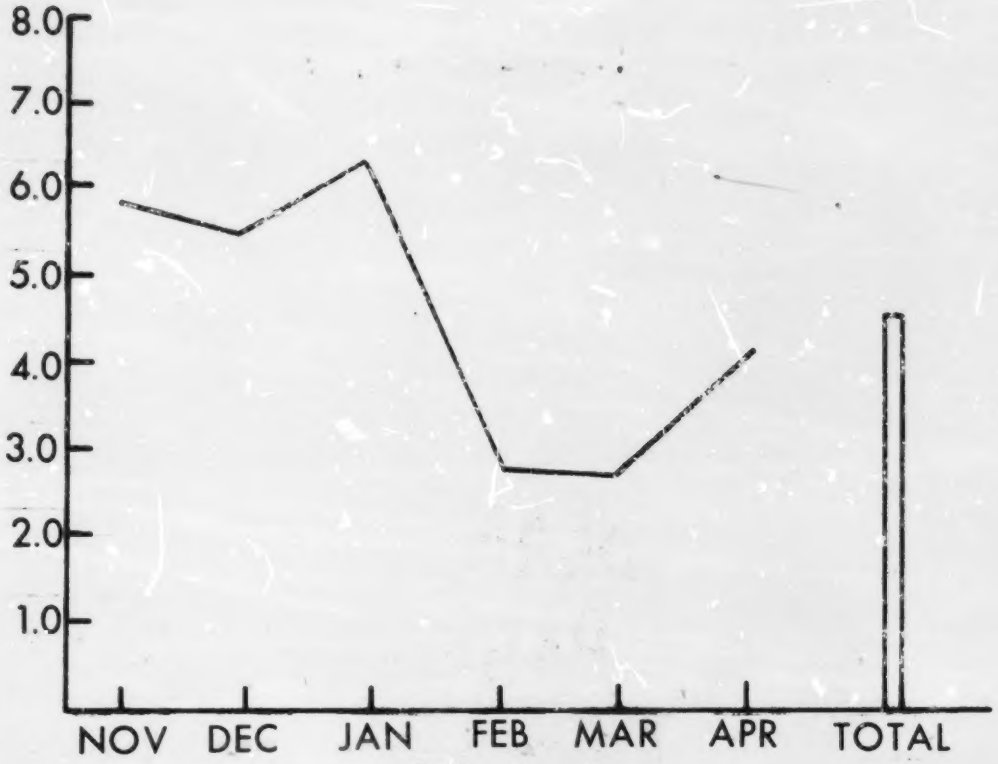
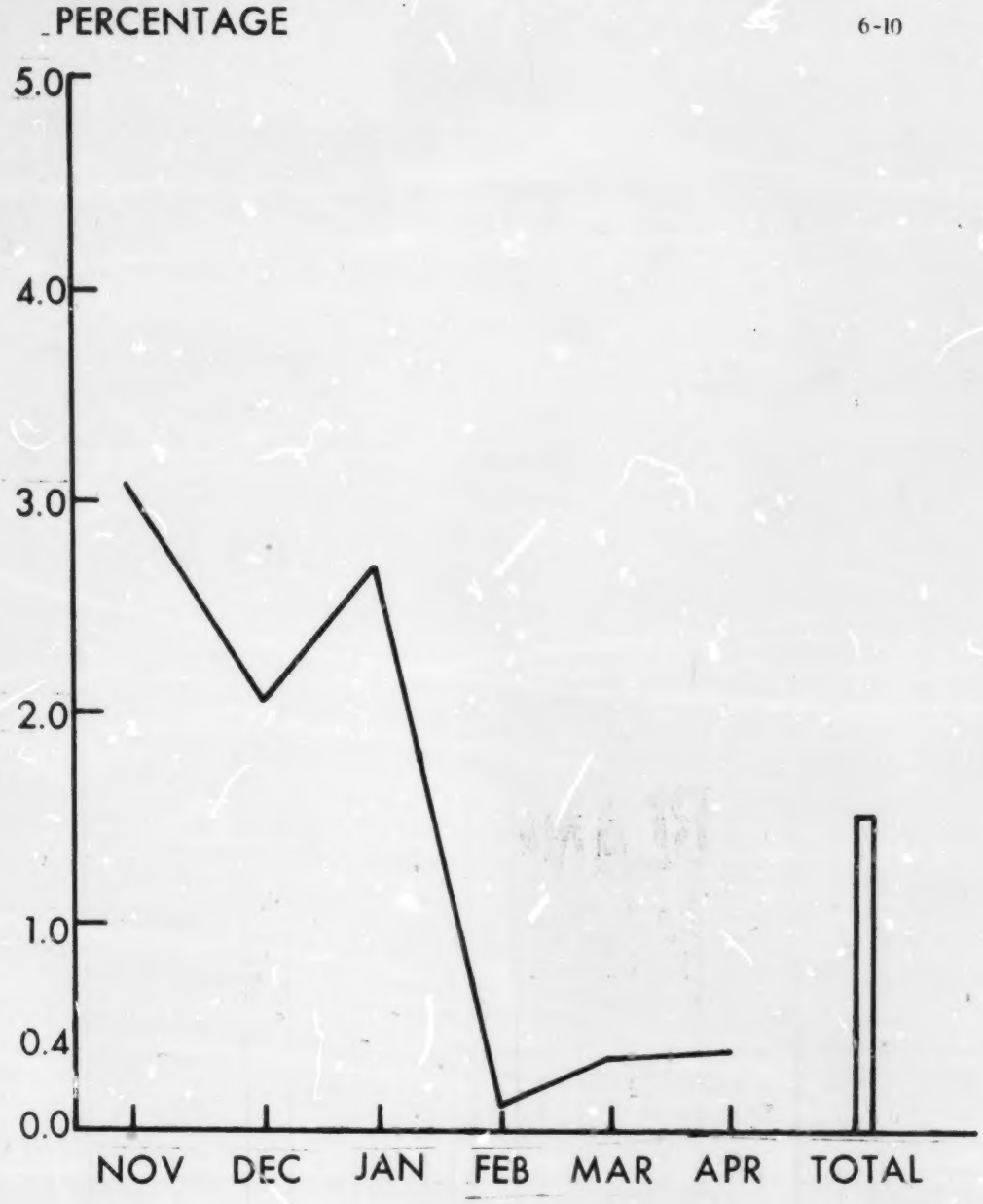


Figure 2 Percent Children Off Task



(Monthly Means)

Fig 3 Percent Children Disruptive

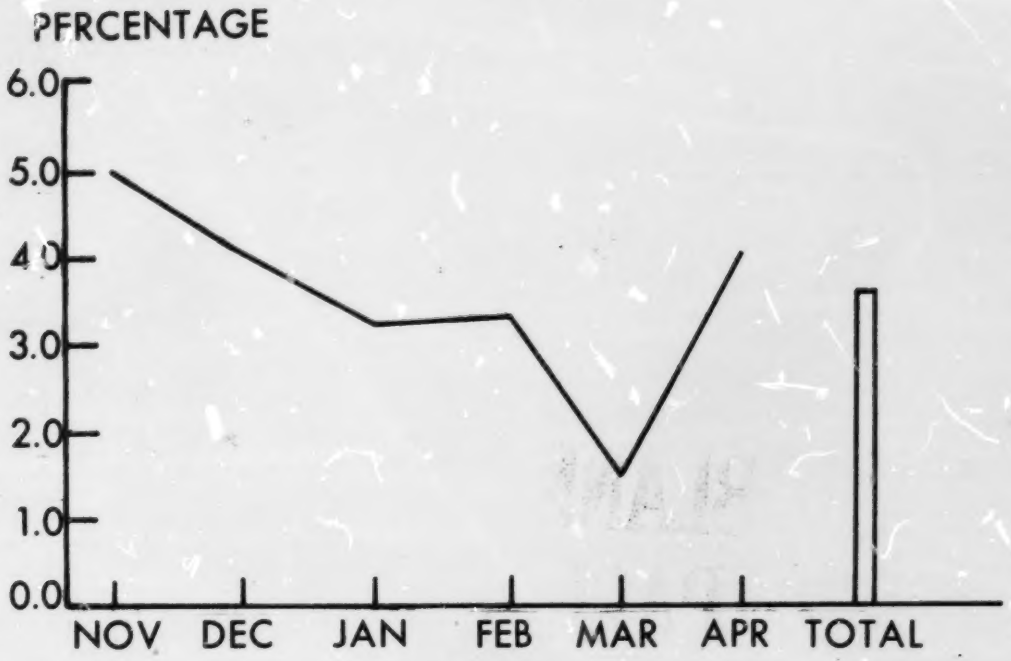


Figure 4 Percent Children Between Task

Beginning in November, the average on-task is 86.07 percent. There is a steady rise in percent on-task until April, at which point the mean slips to 84.75 percent. Averaged over the six-month period during which observations were made, the KEEP class was 90.43 on-task. This value is presented as "Mean" in the table and figures. Both off-task and between-task (Figures 2 and 4) remain relatively low with unsystematic monthly variations.

In contrast, the percent disruptive behavior observed declines over the six-month period from a high in November of 5.25 to a low in April of .18 (See Figure 3). By April, an observer would see, on the average, only one child or no children being disruptive in the KEEP class.

TABLE 2

Average Frequency Positive and Negative Consequences

Per Teacher Per 10 Minute Observation Period

	V+	NV+	V-	NV-
November	10.98	.57	19.22	.37
December	9.80	2.01	2.27	.41
January	16.00	1.80	.52	.05
February	26.47	.93	.08	.00
March	23.72	6.48	.36	.15
April	23.19	5.41	.33	.09

V+: Positive verbal consequences, such as academic and management praise.
NV+: Positive nonverbal consequence: hugs, pats, tokens, hand gestures.
V-: Negative verbal consequences such as scolds, desists, negative evaluations.
NV-: Negative nonverbal consequences: physical restraint, removal of tokens, hand gestures.

Table 2 presents the average frequency of praises, desists, nonverbal positive and negative consequences given per teacher in approximately 10 minutes of daily observation from November until April. Inspection of Table 2 shows that the teachers more than doubled the frequency of their verbal praises from the first three months to the last three months. The average frequency of praising was around 11 praises in about 10 minutes in November, while in April, it was 23; the peak of their praises occurred in February, when they delivered, on the average, 26 praises in 10 minutes. The teachers also increased greatly in their nonverbal positive consequences, while simultaneously decreasing their desists and practically eliminating their nonverbal negative consequences (i.e. punishments). These data are presented graphically in Figures 5 and 6.

The rank order correlation between average monthly teacher V+ and percent student on-task is rho = .3125, a statistically insignificant degree of association. This correlation is between monthly rates of teacher and student behavior.

Discussion

The student on-task and disruptive data are consistent with expectations. That is, it is possible to achieve high levels of student motivation--as indexed by work involvement--through the adjustment in school practices described in this report (see Technical Reports #4 and #7).

The monthly data, however, do not reveal several important points observable in the weekly and daily graphs. Percent of children on-task varied from day to day. Before and after weekends and holidays, the rate of on-task often diminished dramatically. Changes in the school

program also significantly affected the on-task rate, as well as the disruptive rate.

The KEEP staff believed that the V+ rate was not sensitive to those same fluctuations. Specifically, they argued that as the children begin to develop skills in the various program components, the rate of V+ may decrease from the higher levels necessary during initial materials presentation. During the initial stages of instruction, the teacher must use greater amounts of praise to secure successive approximations from students. The rate of social reinforcement and feedback can be "thinned" as the students develop. Also, the teachers suggested that they would praise appropriate behavior more frequently when a large number of children were disruptive to get them back "on-task."

Individual Differences in On-Task

Individual observations were taken separately from the observations of teacher behaviors and total pupil behaviors (described in detail above). The purpose of these individual observations was to obtain information on the four behavioral components as they applied to each child, information which could be subjected to correlational analysis but could not be obtained by observation of the pupil population as a whole. The pupil behavioral code, presented in Appendix A, was also used as the basis for observation of individual children. Observations were taken six times each morning: one individual observation session preceded and followed each of the 15 minute periods designated for observation of behaviors of all pupils and their teacher(s). Each of the children present in the classroom at the times of observations was included. Since some children were removed from the room for various reasons (as subjects for other experiments, for example), the

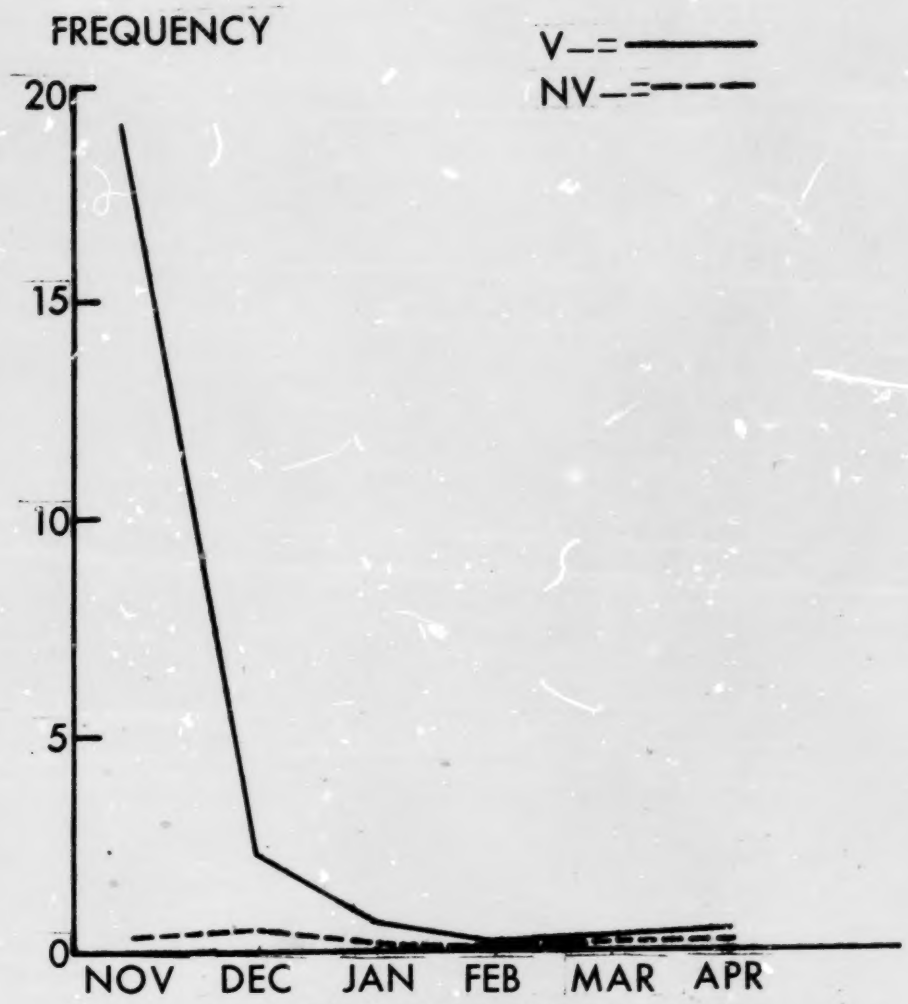


Figure 6 Average Frequency Negative Consequence Per Teacher Pe 10 Minute Observation

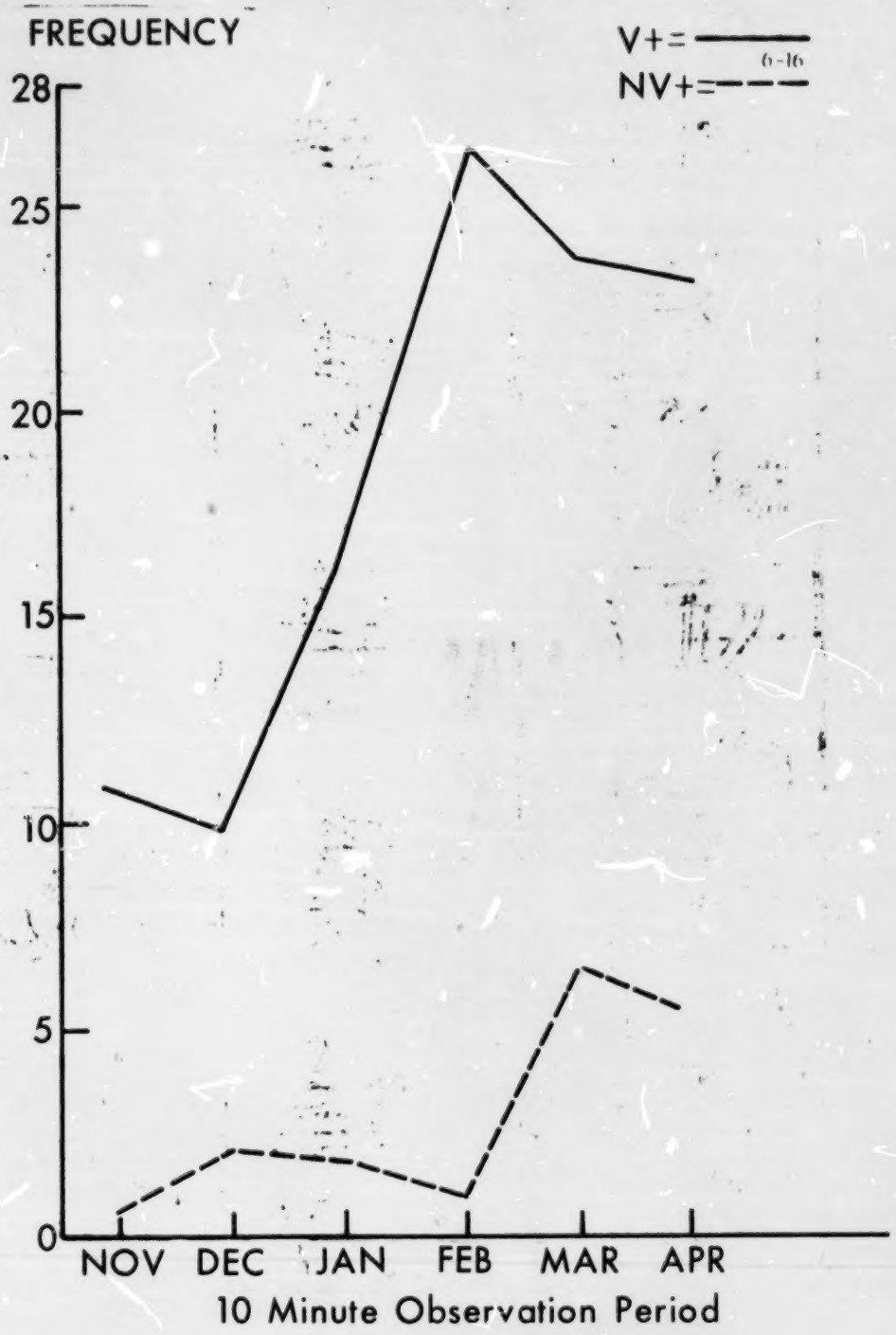


Figure 5 Average Frequency Positive Consequence Per Teacher Per 10 Minute Observation

number of total observations per day for each child may have varied. Each child's name was listed alphabetically by first name, next to which were listed the four behavioral components to be observed: on-task, off-task, between-task, and disruptive. Each category contained six separate cells, corresponding to the six observation periods. The maximum for total observations for each child per day would still be six as these behaviors were mutually exclusive. Proceeding alphabetically down the list, the observers spent approximately five seconds on each child and simply checked the cell pertaining to the child's behavior at that time. The data collected by individual child was highly related to the Continuous Monitoring Total Pupil Behavior Code.

TABLE 3

Significant Correlates of Performance Measures

	Total % On-Task	Number of Pages Correct* in Learning Center
Full I.Q.-September	.56 (28)	.47 (28)
Sex	.56 (28)	.37 (28)
Parents Working	.50 (28)	.60 (28)
Parents Occupation	.46 (28)	.57 (28)
Father Employed	.58 (25)	.53 (25)
Fathers Occupation	.50 (23)	.61 (23)
Mothers Occupation		.42 (28)
Fathers Occupation		.56 (23)
Mothers Education		.46 (28)
SE Rep-Test-Sept.		.43 (28)
SE Rep-Test-May	.42 (28)	.49 (28)
I.Q. - May	.64 (27)	.55 (27)
Total on-task	1.00	.61 (28)
Trial 1 - Peer Tutoring		
Trial 2 - Peer Tutoring	.53 (26)	
Trial 3 - Peer Tutoring	.58 (26)	
Total - Peer Tutoring	.63 (26)	.35 (26)
Number of Siblings		
Childcare by KEEP child		
Childcare for KEEP child		
Adult Childcare		
Ethno-Ratings Female CC		
Ethno-Ratings Male CC		

*1 month span of learning center activity

Results

Despite the problem of obscuring daily variability by averaging individual on-task data across months, the averaged measure correlates very well with socioeconomic factors, I.Q. and achievement scores, and rates of correct classroom work. These correlations are presented in Table 3. Surprisingly, for the class as a whole, there is no relationship between changes in kindergarten year I.Q., achievement, SERT scores and the on-task measure. In general, number of pages correctly completed during one month of learning center activity is correlated with more variables. These data are also in Table 3. For those 11 children who entered with I.Q.'s below 90 however, there is a significant correlation between on-task and I.Q. change ($r = .70$). It would appear that those children who showed the largest increases in I.Q. were also more often on-task.

The Limits of Increasing Student Motivation

The continuous monitoring of student on-task and disruptive behavior indicates that another major KEEP objective was met during the first year of operation. Although reporting of comparison data must await the beginning of consultation work in public schools, an average rate of 90 percent on-task for six months is a value which can be interpreted in absolute terms. In none of the preceding research in Hawaii have higher rates of on-task been observed, including studies in middle income communities (Lenz and Gallimore, 1973).

The often heard argument that children, such as those that attend KEEP, cannot do well because they are "not motivated" and have short "attention spans" is clearly contradicted by the data presented here and in the preceding report. It is possible to secure high rates of

attending and on-task, and it can be done within the constraints of Hawaii's public classrooms. In our view, the issue is training teachers to be better observers and to make more systematic use of social learning principles of reinforcement, prompting, and modelling. Student motivation depends on the teachers.

But our continuing experience indicates that increasing on-task during kindergarten is a necessary, but insufficient achievement.

In the Fall of 1973, the returning first year class of kindergarteners became the first grade group. These same children, who had averaged 87 percent on-task, were virtually unmanageable with their new teachers at the beginning of the school year. The KEEP staff had to carefully follow behavior management principles to settle the group into a productive routine. In short, what we achieved in the first year did not generalize. From our view, this was not surprising. We were, and still continue to be, persuaded that current environmental factors are more important determinants of behavior in elementary age children than the character of their experience in preceding years. Had the KEEP 1972 kindergarten group enrolled in a public school which did not make determined use of behavior principles, the effects of one year of experience at KEEP would have been short lived. The notion that children can be completely "cured" of problematic behavior at an early age is supported neither by data nor by behavior theory. Children are responsive creatures who reflect their environment. Thus, the most effective of preschool and kindergarten programs can be expected to have only minimal effects on the children's response to first grade programs. The first grade program determines the first grade response.

Because of the first year's experience, the first grade program was

more rapidly organized; we inserted new and less thoroughly trained staff into principal teaching roles. The result was chaos in the classroom. Teachers who had not been thoroughly trained in behavior management principles were unable to motivate, much less control, either the KEEP first grade group or the kindergarten group.

An anecdote will illustrate: A staff member was learning to use the videotape recording system, which can be controlled remotely from the observation theatre, and was taping one of the experienced KEEP teachers who was working with the first grade. As she was finishing, a new staff member entered and attempted to organize the children for physical education. For approximately ten minutes, the new teacher struggled to handle the increasingly uncontrollable students, obviously attempting to use many behavior management techniques (she had been on our staff for about three weeks). Then a full scale "riot" broke out. Chidlren were dancing on the tables, leaping from the piano, wrestling and screaming. The new teacher went outside to retrieve two children. The "riot" continued. Suddenly, on the tape, the children quieted down and began to drift into their seats. Into the picture walks their teacher from last year. The experienced teacher leaves. The new teacher enters. Another "riot". This occurred twice more. It is clear from the tape that the presence of the experienced teacher had an astonishing effect on the children.

Obviously, there are several plausible interpretations of this episode. We believe the difference is in the experience and skill with which the two teachers use the principles of behavior management. Another of the new staff had no such difficulty--she had come to the KEEP with several years of experience using behavior modification procedures and

rapidly learned to use the KEEP approach. Finally, the new teacher who had had so much trouble in the first three weeks showed significant improvement over the year in her ability to handle the children--this improvement coincided with increased effective use of behavior management techniques.

Summary

Is it possible to increase student "motivation" by teachers' use of social reinforcement? Because Island children are reputed to be poorly motivated, this question is paramount to all more specific educational problems.

Motivation was measured by actual amount of time that the children were "on-task", as opposed to "off-task" or "disruptive." Continuous monitoring--a system of daily direct observations--indicated that the on-task rate averaged 88 percent, which is very high. This high rate demonstrates that excellent teaching produces good motivation. For the group of children who improved most, on-task rate correlated .70 with I.Q. change. Nevertheless, this good academic level of work did not generalize to other teachers. When new teachers-in-training were introduced, the on-task rate slipped badly. This demonstrates that good management must be constant.

Teacher's rate of positive reinforcement was also continuously monitored. While useful as a "thermometer" of teachers' behavior, this rate did not correlate with children's on-task measures. The teacher rate appeared to be influenced strongly by curriculum material and the stage of students' learning.

Implications for Further Research

1) Teacher-behavior must be more sensitively measured.

2) The relationship between "on-task" and actual learning must be explored.

3) The relationship between "on-task" and different kinds of classroom organization and architecture should be measured.

4) Future classes must be studied to see if the discovered relationships continue to hold.

APPENDIX A

Pupil Behavioral Code

There were four behavioral categories pertaining to the pupils in the classroom. They were:

(a) On-Task

(b) Off-Task

(c) Disruptive

(d) Between-Task

These were mutually exclusive response classes and together were designed to encompass all pupil behaviors which may occur in the classroom. Explanations of each category are as follows:

On-Task -- Any behavior appropriate to the task demands of the particular situation (excepting 'Between-Task'" see below). This mainly involved working on an assignment, attending to the teacher, following instructions, and cooperative work with other pupils (i.e. talking with peers concerning the task at hand).

'On-Task' behaviors included listening to teacher instructions given to another pupil, asking the teacher for help, and going to the teacher to have work checked, so long as these activities did not interfere with other children's work behaviors.

Off-Task -- Any behavior inappropriate to the task demands of the particular situation (excepting 'Disruptive': see below). This mainly involved daydreaming behaviors, watching others or looking around the room, and being physically away from the

designated work area.

'Off-Task' behaviors must have persisted for at least three seconds to have been scored as such; hence, a quick glance around the room by the child followed by work behaviors would have been scored as 'On-Task'.

Disruptive - - This is a special form of 'Off-Task' involving behaviors which interfere with either another child or the teacher or both. In general, this included shouting, crying, fighting, running across the room, and inappropriate socializing (i.e. talking to another child about task-unrelated matters).

'Disruptive' behaviors must have disturbed or interrupted on-going appropriate behaviors on the part of another or others to have been recorded as such; hence, talking to a peer who was working appropriately about task-unrelated events would have been disruptive; on the other hand, if two pupils were socializing inappropriately at the point in time when they were observed, then both would have been scored as 'Off-Task'.

Between-Task -- A special form of 'On-Task' involving work-related activities. It included getting materials from shelves, cleaning up, and moving from one center to another.

APPENDIX B

Teacher Behavioral Code

The six response classes for the teachers were:

(a) V+

(b) NV+

(c) V-

(d) NV-

(e) VP

(f) MP

These categories were nonmutually exclusive (e.g. a given behavior by a teacher may be scored as both V+ and NV+, or V- and NV-, or VP and MP or V+ and NV+ and VP, etc., and together were designed to encompass most teacher behaviors as they occur naturally in the classroom. Here, the two major teacher response classes which were not recorded were explicit instruction-giving and asking questions. Explanations of the above categories are given below:

V+: verbal praise or supportive comments.

e.g. "good," "very good," "I like the way you're working so hard," "you're sitting so nicely."

NH+: non-verbal form of reward

e.g. patting child on back, giving good work awards, granting privilege. (Physical contact with a child was recorded as NV+ only if it was accompanied by verbal praise (V+). Nods of the head and smiles were not recorded.)

V-: verbal desist or disapproving statement.

e.g. "don't do that," "I'm displeased with you," "stop!"

NV: non-verbal desist

e.g. physically removing child from an area, stopping a child from engaging in a particular behavior.

Theoretically included any spanking or physical punishment levied by the teacher, but this did not occur during the observations. NV- did include pointing to the time-out room (usually accompanied by V-) which indicated to the child that he/she was to be punished by isolation. (e.g. "if you know the answer, raise your hand," "we can't start until Edward sits in the circle," "I like the way you're picking harder and harder puzzles to do").... also scored as V+ here.

The most frequently occurring behaviors on the part of the teachers were V+ and VP. VP generally occurred in the form of an implicit direction or rule-stating comment; as such, explicit command statements were not scored. The dual criteria governing the scoring of VP were that: (a) it should have specified the desired response, and (b) it gave the child (children) an option as to the performance or nonperformance of that response.

V+ included any verbalization by the teacher which rewarded or acknowledged a desirable response by one or more pupils (e.g. "good," "that's right").

VP: verbal prompt designed to elicit a specific behavior from the child or children, but phrased in an abstract or implicit fashion (as distinguished from explicit instructions).

e.g. "raise your hand" -- not scored; "if you know the answer,

raise your hand" -- scored as VP.

MP: modelling a physical behavior intended to elicit the same response on the child's or children's part.

e.g. mouthing a particular word, guiding the hand of the child, raising hand to indicate child to do the same.

Rules pertaining to the discrimination of discrete response units for the verbal categories (V+, V-, and VP) were as follows:

(a) a continuous chain of statements by the teacher which fell within one behavioral category and which was scored as one response unit (e.g. "I like the way you're working so hard; good; that's right") .....one check for V+

(b) a continuous chain of statements within one category directed at different individuals was regarded to be as many response units as the number of different individuals (or groups) addressed. (e.g. "good, Rachel; that's right, Jack; I like the way all the children in this groups are working")

.....three checks for V+

(c) verbalizations directed at the same individual or groups were regarded to be discrete response units if they were separated by a time interval of ten seconds or more of no verbalization. (e.g. "that's very good, Keola; you're doing good work"..... (silence for 10 seconds or more)

"I like the way you've been working so hard, Keola")

.....two checks for V+